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06/18/2001

Kevin J. Smart

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EXAMINER

TORRES, JUAN A

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/883,845

Applicant(s)

SMART ET AL.

Examiner

Juan A. Torres

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 4-10, 24-44 and 46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-44 and 46 is/are allowed.
- 6) ☒ Claim(s) 4-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities: in page 22 at the end of the second paragraph the recitation “. An output of the first sliding-window transform 921 is provided to an input of an M-th demapper 933.” Is improper; it is suggested to be changed to “. An output of the first sliding-window transform 921 is provided to an input of an M-th demapper 931.”.

Appropriate correction is required.

### ***Response to Arguments***

Regarding claim 6

Applicant's arguments filed 10/03/2005 have been fully considered but they are not persuasive.

The Applicant contends, “Regarding Claim 6, the cited prior art does not teach or suggest a time-to-frequency converter, the time-to-frequency converter configured to receive a stream of data samples and calculate L streams of output values for L communication channels, the converter configured to calculate each of the output values using N input values where the value of N is selected on a channel-by-channel basis such that a first channel uses a value for N that is different from a value of N used by a second channel.”

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Cioffi discloses a time-to-frequency converter, the time-to-frequency converter configured to receive a stream of data samples and calculate L streams of output values

for L communication channels, the converter configured to calculate each of the output values using N input values where the value of N is selected on a channel-by-channel basis such that a first channel uses a value for N that is different from a value of N used by a second channel (figure 3 blocks 76 and 78 column 6 lines 43-65). For these reasons and the reason stated en the previous Office action, the rejection of claim 6 is maintained.

Regarding claim 4

Applicant's arguments filed 10/03/2005 have been fully considered but they are not persuasive.

The Applicant contends, "Regarding Claim 4, the cited prior art does not teach or suggest that L does not equal N."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Cioffi discloses L does not equal N (figure 3 blocks 76 and 78 column 6 lines 43-65). For these reasons and the reason stated en the previous Office action, the rejection of claim 4 is maintained.

Regarding claim 5

Applicant's arguments filed 10/03/2005 have been fully considered but they are not persuasive.

The Applicant contends, "Regarding Claim 5, the cited prior art does not teach or suggest that a new output value is computed for each channel each time said converter receives a new input value."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Cioffi discloses a new output value is computed for each channel each time said converter receives a new input value (figure 3 blocks 76 and 78 column 6 lines 43-65). For these reasons and the reason stated en the previous Office action, the rejection of claim 5 is maintained.

Regarding claim 9

Applicant's arguments filed 10/03/2005 have been fully considered but they are not persuasive.

The Applicant contends, "Regarding Claim 9, the cited prior art does not teach or suggest that the value of N is the basic function length."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Cioffi inherently discloses that the value of N is the basic function length (column 6 line 52). For these reasons and the reason stated en the previous Office action, the rejection of claim 9 is maintained.

Regarding claim 10

Applicant's arguments filed 10/03/2005 have been fully considered and they are persuasive. The rejection in the previous Office action of claim 10 has been withdrawn.

Regarding claim 7

Applicant's arguments filed 10/03/2005 have been fully considered but they are not persuasive.

The Applicant contends, "Regarding Claim 7, the cited prior art does not teach or suggest the use of power lines for data transmission using time-to-frequency converters."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Hershey discloses the use of power lines for data transmission using time-to-frequency converters (column 6 lines 2-5). For these reasons and the reason stated in the previous Office action, the rejection of claim 7 is maintained.

Regarding claim 8

The Applicant contends, "Regarding Claim 8, the cited prior art does not teach or suggest that the receiver is configured to receive communication signals from a wireless network."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Chow teaches that the receiver is configured to receive communication signals from a wireless network (column 6 lines 8-10). For these reasons and the reason stated in the previous Office action, the rejection of claim 8 is maintained.

Regarding claim 7

Applicant's arguments filed 10/03/2005 have been fully considered but they are not persuasive.

The Applicant contends, "Regarding Claim 7, the cited prior art does not teach or suggest the use of power lines for data transmission using time-to-frequency converters."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Hershey discloses the use of power lines for data transmission using time-to-frequency converters (column 6 lines 2-5). For these reasons and the reason stated in the previous Office action, the rejection of claim 7 is maintained.

Regarding claim 8

The Applicant contends, "Regarding Claim 8, the cited prior art does not teach or suggest that the receiver is configured to receive communication signals from a wireless network."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Chow teaches that the receiver is configured to receive communication signals from a wireless network (column 6 lines 8-10). For these reasons and the reason stated in the previous Office action, the rejection of claim 8 is maintained.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 4-6 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Cioffi (US 5933454).

As per claim 6 Cioffi discloses a time-to-frequency converter, the time-to-frequency converter configured to receive a stream of data samples and calculate L streams of output values for L communication channels, the converter configured to calculate each of the output values using N input values where the value of N is selected on a channel-by-channel basis (figure 3 blocks 76 and 78 column 6 lines 43-65).

As per claim 4 Cioffi discloses L does not equal N (figure 3 blocks 76 and 78 column 6 lines 43-65).

As per claim 5 Cioffi discloses a new output value is computed for each channel each time said converter receives a new input value (figure 3 blocks 76 and 78 column 6 lines 43-65).

As per claim 9 Cioffi inherently discloses that the value of N is the basic function length (column 6 line 52).

Claims 4-6 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Tzannes (US 5497398).

As per claim 6 Tzannes discloses a time-to-frequency converter, the time-to-frequency converter (figure 1 block 120 column 3 line 63) configured to receive a stream of data samples and calculate M streams of output values for M communication channels (figure 1 block 122 column 4 line 57), the converter configured to calculate each of the output values using W input values where the value of W is selected on a channel-by-channel basis (column 4 lines 60-62).

As per claim 4 Tzannes discloses M does not equal W (column 4 lines 4-6).



As per claim 5 Tzannes discloses a new output value is computed for each channel each time said converter receives a new input value (column 5 lines 4-6).

As per claim 9 Tzannes discloses that the value of W is the basic function length (column 6 line 52).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cioffi (US 5933454), and further in view of Hershey (US 5844949). Cioffi teaches claim 6. Cioffi doesn't teach the use of power lines as a transmission medium. It is well known and Hershey discloses the use of power lines for data transmission using time-to frequency converters (column 6 lines 2-5). Cioffi and Hershey are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Cioffi the power line medium disclosed by Hershey. The suggestion/motivation for doing so would have been to use a wired medium that connect homes with centralized points. Therefore, it would have been obvious to combine Cioffi with Hershey to obtain the invention as specified in claim 7.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cioffi (US 5933454), and further in view of Chow (US 5479447). Cioffi teaches claim 6. Cioffi

doesn't teach the use of wireless networks as a transmission medium. Chow teaches that the receiver is configured to receive communication signals from a wireless network (column 6 lines 8-10). Cioffi and Chow are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Cioffi the wireless network disclosed by Chow. The suggestion/motivation for doing so would have been to communicate locations that don't have a physical medium between them. Therefore, it would have been obvious to combine Cioffi with Chow to obtain the invention as specified in claim 8.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzannes (US 5497398), and further in view of Hershey (US 5844949). Tzannes teaches claim 6. Tzannes doesn't teach the use of power lines as a transmission medium. It is well known and Hershey discloses the use of power lines for data transmission using time-to-frequency converters (column 6 lines 2-5). Tzannes and Hershey are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Tzannes the power line medium disclosed by Hershey. The suggestion/motivation for doing so would have been to use a wired medium that connect homes with centralized points. Therefore, it would have been obvious to combine Tzannes with Hershey to obtain the invention as specified in claim 7.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzannes (US 5497398), and further in view of Chow (US 5479447). Tzannes teaches claim 6.

Tzannes doesn't teach the use of wireless networks as a transmission medium. Chow teaches that the receiver is configured to receive communication signals from a wireless network (column 6 lines 8-10). Tzannes and Chow are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Tzannes the wireless network disclosed by Chow. The suggestion/motivation for doing so would have been to communicate locations that don't have a physical medium between them. Therefore, it would have been obvious to combine Tzannes with Chow to obtain the invention as specified in claim 8.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cioffi (US 5933454), and further in view of Ojard (US 6760347 B1). Cioffi discloses a receiver comprising a time-to-frequency converter, the time-to-frequency converter configured to receive a stream of data samples and calculate L streams of output values for L communication channels, the converter configured to calculate each of said output values using N input values (figure 3 blocks 76 and 78 column 6 lines 43-65) comprising an equalizer configured to equalize a data value for a first channel (figure 3 blocks 74 column 6 lines 55-56). Cioffi doesn't disclose that the equalizer is configured to determine equalization parameters by examining a packet header. Ojard discloses that the equalizer is configured to determine equalization parameters by examining a packet header (column 7 lines 26-34 and column 17 line 50 to column 24 line 23). Cioffi and Ojard are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to

incorporate in the receiver disclosed by Cioffi the header equalization disclosed by Ojard. The suggestion/motivation for doing so would have been to use local area networks having multiple stations connected over preexisting twisted pair telephone wiring (Ojard column 17 lines 52-63). Therefore, it would have been obvious to combine Cioffi with Ojard to obtain the invention as specified in claim 10.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzannes (US 5497398), and further in view of Ojard (US 6760347 B1). Tzannes discloses a receiver comprising a time-to-frequency converter, the time-to-frequency converter (figure 1 block 120 column 3 line 63) configured to receive a stream of data samples and calculate M streams of output values for M communication channels (figure 1 block 122 column 4 line 57), the converter configured to calculate each of said output values using W input values (column 4 lines 60-62) comprising an equalizer configured to equalize a data value for a first channel (figure 1 block 124 column 4 lines 9-11). Tzannes doesn't disclose that the equalizer is configured to determine equalization parameters by examining a packet header. Ojard discloses that the equalizer is configured to determine equalization parameters by examining a packet header (column 7 lines 26-34 and column 17 line 50 to column 24 line 23). Tzannes and Ojard are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Tzannes the header equalization disclosed by Ojard. The suggestion/motivation for doing so would have been to use local area networks having multiple stations connected over preexisting twisted pair telephone

wiring (Ojard column 17 lines 52-63). Therefore, it would have been obvious to combine Tzannes with Ojard to obtain the invention as specified in claim 10.

***Allowable Subject Matter***

Claims 24 -46 are allowable over prior art.

The following is an examiner's statement of reasons for allowance: claim 24 – 46 are allowed because the references cited fail to teach, as applicant has, a communication receiver configured to receive data transmitted on a plurality of carriers, comprising: a sub-band filter for separating a received analog signal into a plurality of separate sub-band signals corresponding to a plurality of sub-bands, where at least one of said sub-bands comprises a plurality of sub-channels, said plurality of sub-channels comprising a first sub-channel and a second sub-channel; an analog to digital converter configured to convert a first sub-band signal into a first sub-band digital data stream; a first sliding-window transform configured to transform said first sub-band digital data stream into a first channel data stream; and a second sliding-window transform configured to transform said first sub-band digital data stream into a second channel data stream, as the applicant has claimed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on M-F 9:00 AM - 5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan Alberto Torres  
10-18-2005

  
**KEVIN BURD**  
**PRIMARY EXAMINER**